

Factors Affecting Chinese EFL Learners' Spoken Word Recognition¹

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Abstract

Spoken word recognition is vital to effective oral communication (Flood, Lapp, Squire & Jensen, 2003). Since language in the spoken form is more challenging in light of the fact that ears have to discern sounds which cross the word boundaries for fluency, the ability to comprehend and identify correctly what is said is therefore the key to understanding spoken English. To fully comprehend a naturally pronounced sentence well, EFL/ESL learners need a basic knowledge of connected speech, including C-C linking, C-V linking, /h/-deletion, contraction, palatalization, and flapping. In a pioneering study, Henrichsen (1984) examined ESL learners' performance difference in comprehending sentences spoken with reduced perceptual saliency and in understanding those spoken with "distinct but natural" pronunciation. The presence of connected speech modifications and the ESL learners' general English proficiency were found to affect the comprehensibility of input for these ESL learners. Likewise, Taiwanese EFL learners were found to encounter difficulties with linking (Kuo, 2009; Wang, 2005), whereas Japanese EFL learners had problems with contraction and /h/-deletion in speech perception (Crawford, 2006). This study thus replicates and extends Henrichsen's study to determine whether connected speech modifications influence Taiwanese EFL learners' spoken word recognition and to further categorize their difficulties with the various components of connected speech modifications. The participants are 103 Sophomore English majors at three distinct English listening proficiency levels based on their scorings on the intermediate-level GEPT. A dictation test of 24 digitally recorded sentences, containing the aforementioned connected speech patterns, was developed. Paired *t*-test results showed that the presence of connected speech modifications significantly affected the subjects' listening comprehension. Further two-way ANOVA analyses revealed that the subjects' general listening proficiency and types of connected speech patterns were the predictors of their performance in English spoken word recognition.

Key words: reduced forms, connected speech modifications, spoken word recognition

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影響台灣英語學習者口語詞彙辨識因素之研究²

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摘要

口語詞彙辨識能力在有效的口語溝通中扮演極為重要之角色(Flood, Lapp, Squire & Jensen, 2003)。相較於書寫形式之語言，口說形式之語言較具挑戰性，因順暢語流中常隱藏縮減音，且學習者之理解力常因能否辨識縮減音而決定。為完全理解自然說出之語句，EFL/ESL 學習者需具備基本口語語流知識，如子音加子音之連音、子音加母音之連音、/h/省略、縮短音、顎化音及舌拍音等。Henrichsen 於 1984 年首度檢視 ESL 學習者在理解有無縮減音句子之表現差異。其研究結果顯示縮減音之使用及 ESL 學習者的英文程度是影響理解力之兩個重要因素。相同地，台灣 EFL 學習者也面臨連音之難題(Kuo, 2009; Wang, 2005)，而日本 EFL 學習者則有辨識縮短音及/h/省略之問題(Crawford, 2006)。本研究首先複製並延伸 Henrichsen 之研究以確定縮減音是否影響台灣 EFL 學習者之口語詞彙辨識能力，並進一步確定引發問題之口語語流類型。研究對象為 103 位英語系大二學生，其英語聽力程度以全民英檢中級得分區分為高、中、低三等級。依據上述六種縮減音類型，本研究自行開發內容為 24 個句子之聽寫測驗作為主要測驗工具，並邀請一位具有 20 年發音教學經驗之外師進行數位錄音。成對樣本 *t* 檢定結果顯示縮減音之存在顯著影響受測者之聽力理解。進一步二因數 ANOVA 統計分析結果顯示受試者之聽力程度與口語語流類型為預測 EFL 學習者口語詞彙辨識能力表現之主要因素。

關鍵字:縮減音、口語語流、口語詞彙辨識

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Introduction

Connected speech is a natural speech flow with its contracted forms like elision, liaison, and reduction (Brown & Hilferty, 1989/2006). Although written English does not reflect most of the connected speech forms, spoken English exhibits considerable connected speech modifications. And some researchers found that the presence or absence of the connected speech patterns significantly affected learners' listening comprehension (Henrichsen, 1984; Ito, 2006). In experiments conducted in the ESL context, Henrichsen (1984) and Ito (2006) found that the presence/absence of the connected speech patterns and subjects' proficiency levels significantly affected learners' listening comprehension. When a similar experiment was conducted in the Taiwanese EFL context, Fan (2003) found that there was a positive correlation between proficiency level and the subjects' performance in connected speech comprehension. However, the weakness of Fan's study is that she did not assess the learners' listening proficiency by any independent test. In a more recent research conducted in the Taiwanese EFL context, Kuo, Lu, and Li (2011) confirmed that the presence of connected speech modifications significantly influenced Taiwanese senior high school students' spoken word recognition and further categorized C-V linking as the most difficult for the students. The types researched were limited to only reduced forms of content words¹ focusing on palatalization, C-V linking, elision, and flapping. However, the factor of listening proficiency of the subjects was not taken into consideration.

The previous studies have encompassed a wide range of issues regarding the connected speech, such as subjects in different learning contexts, types of connected speech, the effect of presence/absence of connected speech, and the relationship between proficiency level and understanding of connected speech. But among them, two studies recruited ESL learners to examine the effect of presence/absence of reduced forms on their listening comprehension (Henrichsen, 1984; Ito, 2006), and only one study has compared EFL non-English majors' performance in word recognition in the presence/absence of reduced forms (Kuo, Lu, & Lee, 2011). As for the measures used in the ESL context, Henrichsen (1984) used sentence-dictations, in which the perceptual saliency of the sentences was reduced by contraction, reduction, and/or assimilation. Adding to this kind of complication, a variety of different types of abbreviated prepositions, pronouns, articles, and modals were also involved. For example, the test items included "Who'd he been to see?" "Who'd he wanna see?" and "Who'd he like to see?" And subjects had to write the full form of the second word of each sentence. And Ito (2006) modified Henrichsen's measures by using simpler sentences and categorizing reduced forms into phonological and lexical forms. Like Henrichsen, Ito required his subjects to write the full form of the sentence they heard without any indication of word numbers. But these test items might be too challenging in an EFL context. And some of the previous studies investigated conditions of Taiwanese EFL students, they only reported "perceived difficulty" of the subjects (Kuo, 2009; Wang, 2005). As for the types of connected speech patterns, only a small range of contraction, C-V linking, elision, and palatalization were examined. Other commonly used types of modifications such as /h/-deletion, flapping have not been discussed. Only one study has examined the factor of proficiency on EFL subjects' performance in understanding connected speech. However, the proficiency level of the students was not determined by a standardized test (Fan,

¹ In this study "reduced forms" and "connected speech" are used interchangeably when it comes to how sounds are connected in speech.

2003).

Based on the deficiencies of previous studies, the present study intends to focus on examining three factors, which are the presence of connected speech, the proficiency level of subjects, and types of connected speech. The present study thus recruited EFL English majors to investigate if the same effect of presence/absence will occur in EFL learners' performance, to examine whether subjects' listening proficiency affects their understanding of connected speech by conducting an independent GEPT standardized test to decide on the proficiency level of the students, and to increase the types of reduced forms for study to further locate learners' specific error types in order to implement appropriate intervention plans. The present study will address the following questions:

1. Does the presence of connected speech patterns in a natural speech flow affect intermediate-level English majors' spoken word recognition?
2. Does the effect of connected speech modifications on listeners' performance of spoken word recognition differ according to the learners' proficiency levels?
3. Is the subjects' performance of spoken word recognition affected by the types of connected speech patterns?
4. Are there interactions between types of connected speech patterns and subjects' proficiency levels?

Types of Connected Speech Patterns Examined in the Present Study

Pioneering researchers in Taiwan have found that contraction, C-V linking, /h/-deletion, flap of /t/ (Fan, 2003), assimilation (Fan, 2003; Wang, 2005), and V-V linking (Kuo, 2009) are the basic types of connected speech causing problems for Taiwanese EFL learners. Adding to these types, the present study includes an additional and somewhat confusing type of connected speech, palatalization, for investigation. The definition of connected speech is provided as follows (Brown & Kondo-Brown, 2006):

Elision, also named deletion or omission, refers to the phenomenon that a sound in the citation forms is eliminated in certain environments. Consonant clusters in English tend to undergo elision. When the consonant cluster occurs in the final position of a word and the next word starts with a consonant, the consonant cluster will be modified. For example, /d/ in "blind man" will be deleted.

Contraction is the only connected speech pattern that can be reflected in written forms. Contraction often occurs in function words, such as "am," "is," "will," "have," and "has." For example, "I am" can be contracted as "I'm."

Linking is a process in which the final sound of a word is connected with the initial sound of the next word. There are two subcategories in English: C-V linking and V-V linking, for example, "type it" (C-V linking), "see it" (V-V linking).

/h/-deletion happens when the final consonant of a word is connected with an initial /h/ of the following word. The sound of /h/ tends to disappear. For example, "tell him" will sound like "telim."

Palatalization refers to the assimilation process, where a word ending with an alveolar consonant /s, z, t, d/ is followed by another word with an initial palatal glide /j/, for example, "miss you," "as you," "bet you," and "did you."

Flapping specifies that alveolar stops are realized as flaps in intervocalic positions. Both voiced and voiceless stops appear on the surface as voiced flaps, for example, "eat it" and "read it."

Literature Review

Research investigations on the issue of reduced forms have indicated that normal speech flows containing simplified patterns such as contraction, elision, deletion, assimilation, and linking can prevent the listener from perceiving sounds and identifying words (Boyle, 1984; Fan 1993; Richards, 1983; Rubin, 1994; Ur, 1984). In other words, when reduced forms are used in a stream of speech, word boundaries blur and difficulties occur, causing failure of listening comprehension.

Real-life English, unlike classroom English taught by non-native speaker teachers, is usually spoken in a connected way with phonological modification. However, EFL teachers tend to speak at a slower pace to train learners' listening skills and the listening materials tend to be clearly articulated speech (Rosa, 2002). Learners who fail to sense and detect the differences between classroom English and real-life English may encounter frustrating experiences when dealing with real-life English conversation. An assertion deserving attention is that the connected speech patterns which occur in spoken language are common in all registers, even in the most formal speech (Brown & Kondo-Brown, 2006; Rosa, 2002).

The pioneering research on the effect of connected speech can be dated back to 1984 when Henrichsen recruited 65 subjects, including 15 native speakers, to measure their comprehension of Sandhi-Variation, also known as connected speech. In this experiment, Henrichsen used the Sandhi-Variation Exercise (SVE), a modification of the Integrative Grammar Test (IGT) developed by Bowen (1975, cited in Cahill, 2006), to determine how much non-native speakers and native speakers were affected by the presence of Sandhi-Variation. The test underwent was in the form of dictation which contained two versions of SVE, each of which consisted of 15 mixed sentences. The 15 sentences were read in two ways, namely, with the presence of connected speech and the absence of connected speech. And in the two versions of dictation, students would hear the 15 sentences read in different ways. This was to eliminate predictions in answers. In the sentences, the perceptual saliency of the second word in connected speech was reduced by contraction, reduction, and/or assimilation. After hearing each sentence, the examinees' task was to determine what the second word was and to write it down in its full form. Between the two versions, there was a 30-minute interval to eliminate subjects' memory of the material. The results showed that, in the ESL context, there were significant differences in the SVE scores according to the subjects' level of proficiency and the presence/absence treatment condition differences; however, the results are not significant at the native speaker level.

In a smaller-scale experiment, Ito (2006) modified two aspects of Henrichsen's study for investigation. One was the sentence complexity in the test, and the other was types of reduced speech. Ito recruited 18 nonnative speakers and 9 native speakers of English, and based on students' TOEFL scores or their placement test scores, the students were divided into three groups, namely, native-speaker, non-native speaker-upper and non-native speaker-lower. Similar to Henrichsen's experiment design, the dictation test consisted of 20 sentences with reduced forms to measure listening comprehension. Two different types of reduced forms were incorporated into the 20 sentences: 10 lexical forms (*isn't*, *aren't*, *won't*, *haven't*, etc.) and 10 phonological forms; ie, forms with the same pronunciation but with syntactic ambiguity (*he's*, *she's*, *they're*, *I've*, etc.). Each subject took a dictation test with two different versions (Versions A & B). During the test, each sentence was played only once, and 15 seconds were given between sentences for students to write down the answer. Between the two versions of dictation, a crossword puzzle was given to the participants as a distractor. The results showed that the presence of reduced forms was

a significant factor for the performance of listening comprehension of non-native speaker groups. Both nonnative speakers high and low groups scored significantly higher in the absence of reduced forms than in their presence, and they scored lower on phonological than lexical forms. As for the native speakers, they scored the same on both reduced form types (lexical & phonological forms).

In these two crucial studies, the researchers confirmed the presence of connected speech as a positive factor affecting the performance of ESL students' listening comprehension and verified that both lexical and phonological types of reduced forms are equally confusing to non-native speakers, regardless of their proficiency levels. Following Henrichsen's research, some researchers recruited EFL learners in a Chinese context or Japanese context (Brown & Hilferty, 2006; Crawford, 2006; Fan, 2003; Matsuzawa 2006). Fan (2003) conducted a research on Taiwanese EFL students' perception of connected speech. In this experiment, Fan recruited three freshman language lab classes, who were selected and divided into one higher-proficiency group and one lower-proficiency group, according to their English scores on the entrance exam. The pretest and posttest were done in the form of filling the blanks. Fan employed listening training and reduced forms teaching to investigate the effect of explicit instruction of connected speech on freshmen college students. It was found that C-V linking, /h/-deletion, assimilation and flap of /t/ were problems for Taiwanese EFL students, regardless of students' proficiency levels. But this research did not recruit a control group for comparison and the subjects' proficiency level was not reliably determined.

In a latest research, Kuo, Lu, and Li (2011) conducted study in the EFL context and confirmed that the presence of connected speech modifications significantly influenced Taiwanese senior high school students' spoken word recognition and further categorized C-V linking as the most difficult for the students. But the types researched were limited to only reduced forms of content words focusing on palatalization, C-V linking, elision, and flapping. Furthermore, the factor of listening proficiency of the subjects was not taken into consideration.

Methodology

Participants

One hundred and three non-native speakers were recruited from two intact sophomore English-major classes in a central Taiwan university. The subjects' proficiency levels were determined by a test of the Intermediate Level GEPT Listening (the General English Proficiency Test). The grouping is shown in Table 1, using the uppermost and lowermost 27% of the subjects to form the high-proficiency group and the low-proficiency group. The results of the independent *t*-test on the scores of the GEPT listening test showed that there is significant difference between the high-proficiency group and the low-proficiency group, $t(51) = 12.48, p < .001$.

Table 1: Proficiency test results

	<i>N</i>	<i>Mean</i>	<i>SD</i>
High-proficiency group	26	43.19	0.75
Mid-proficiency group	50	39.20	1.52
Low-proficiency group	27	32.52	4.00

Maximum score = 45

$p < .001$

Instrument

The dictation material was a self-developed dictation test, which consisted of 24 sentences read in two ways, namely, with the presence and the absence of reduced forms. The reduced forms in the 24 test items included C-V linking, /h/-deletion, flapping, elision, contraction, and palatalization. The dictation material was verified with a Cronbach's Alpha 0.856 reliability.

According to Field (2003), pauses in natural speech normally appear every 12 syllables. The training of students' sentence dictation is thus suggested to be within 12 syllable chunk limit. In the self-developed cloze test for the present study, each question was limited to 9 to 11 syllable chunks (See Appendix). Subjects were required to write down the full form of each word in the spoken sentence they heard. By taking the EFL subjects' proficiency into consideration, the words in the sentences were indicated by parentheses (modified from Henrichsen, 1984; Ito, 2006; Wang, 2005), whereas Henrichsen's and Ito's versions did not implement this format. Further, the recording of the dictation was done by a native speaker, an experienced instructor of pronunciation in a central Taiwan university.

Procedure for the dictation test

Following the testing procedure of Henrichsen (1984) and Ito (2006), the test was given in two versions. Presence and absence of connected speech were distributed in *Test A* and *Test B*. To counterbalance the test item difficulty, one class did the test in the order of A, then B, whereas the other class reversed the order. For an interval tests A and B, an activity irrelevant to reduced forms intervened as a distraction.

Scoring criteria.

Though students were required to transcribe the whole sentence, only the targeted reduced forms were scored, the maximum score being 48. For example, in scoring the test sentence "(I) (miss) (you) (a) (lot) (since) (you) (left) (for) (school)," only the phrase "miss you" targeting the connected speech pattern of palatalization was counted.

Data collection and data analyses

The dictation test scores of presence/absence of connected speech (*Test A* and *Test B*) were collected for analysis. The scores of all subjects in the two dictation tests were run in paired samples *t*-tests to examine the effect of reduced forms on the subjects' performance of spoken word recognition to answer research question 1. Further, a two-way ANOVA analysis was used to determine whether the subjects' proficiency levels and the types of connected speech patterns affected their spoken words recognition in order to answer research questions 2, 3 and 4.

Results and Discussion

The results and discussion are presented in the order of the four research questions posed in this study.

Research question 1: Does the presence of reduced forms in a natural speech flow affect intermediate level English majors' spoken word recognition?

Table 2 shows the means and standard deviations of the subjects' performance in absence/presence of connected speech dictations. The paired samples *t*-test results yielded a significant difference between absence-of-connected-speech dictation and presence-of-connected-speech dictation ($p < .001$).

Table 2. Paired samples *t*-test results of the correct response percentage for *absence of reduced forms* and *presence of reduced forms*

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Absence	103	0.77	0.20	17.33	.001*
Presence	103	0.58	0.28		

$p < .001$

The results indicate that the presence of reduced forms in a natural speech flow did significantly affect the participants' performance of spoken word recognition. Though previous studies (Henrichsen, 1984; Ito, 2006) have confirmed that English learners' listening comprehension is strongly influenced by reduced forms used in a natural speech flow, the subjects recruited were limited to ESL learners only. The participants of the present study were thus specifically limited to English majors to investigate whether higher proficiency EFL learners would be exempt from the effect of reduced forms since they were exposed to English more than general EFL learners. The finding supports that the presence of reduced forms has significant negative influence over the ability of recognizing spoken words for non-native speakers of English.

Research question 2: Does the effect of reduced forms on listeners' performance of spoken word recognition differ according to their proficiency levels?

To answer this question, data gathered from the three groups was run in the two-way ANOVA analysis. Descriptive statistics in Table 3 show that the correct response percentages of presence of connected speech modifications for the high-proficiency group, mid-proficiency group, and low-proficiency group are 0.724, 0.576, and 0.434 respectively. It indicates that in the presence of connected speech modifications, the higher the proficiency level, the better the subjects performed in spoken word recognition.

Table 3: Descriptive statistics of the correct answering rates of subjects of various proficiency levels in the presence of connected speech modifications

	<i>N</i>	<i>M</i>	<i>SD</i>
High-proficiency group	156 (26)	0.724	0.19
Mid-proficiency group	300 (50)	0.576	0.14
Low-proficiency group	162 (27)	0.434	0.18

As shown in Table 4, results of the two-way ANOVA analysis revealed that the effect of reduced forms on listeners' performance of spoken word recognition differ significantly according to listeners' proficiency levels. Results of the Scheffé multiple group comparisons showed that the high-proficiency group performed significantly better than the mid-proficiency group which in turn outperformed the low-proficiency group. This finding indicates that proficiency level is a factor affecting listeners' performance of spoken word recognition in the presence of reduced forms.

Table 4. Two-way ANOVA summary results for subjects' proficiency levels and types of reduced forms in spoken word recognition measure

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
proficiency	6.67	2	3.34	61.02	.001*
type	8.16	5	1.63	29.84	.001*
proficiency * type	1.33	10	0.13	2.43	.008*

Research question 3: Is the subjects' performance of spoken word recognition affected by the types of reduced forms?

Table 5 shows the descriptive statistics of the subjects' correct-answering rate of six types of connected speech patterns. The correct answering rates of contraction and /h/-deletion are 41% and 45% respectively. As for C-V linking, elision, palatalization and flapping, the correct-answering rates are 54%, 65%, 67%, and 74% respectively. As shown in Table 4, the two-way ANOVA analysis revealed that types of connected speech modifications also significantly affected the subjects' performance in spoken word recognition. According to Scheffé multiple group comparisons on the correct answering rate, flapping was found to be significantly the easiest connected speech modification for students to understand. Palatalization and elision were equally easy for understanding. But difficulty appeared in C-V linking, /h/-deletion and contraction, among which C-V linking caused significantly more problems in word recognition while /h/-deletion and contraction both influenced students' recognition equally seriously.

Table 5. Descriptive statistics of types in the presence condition of connected speech modifications

	<i>N</i>	<i>M</i>	<i>SD</i>
Type 1: contraction	103	0.41	0.219
Type 2: palatalization	103	0.67	0.154
Type 3: C-V linking	103	0.54	0.198
Type 4: elision	103	0.65	0.288
Type 5: /h/-deletion	103	0.45	0.417
Type 6: flapping	103	0.74	0.180

In summary, the finding supports that type of connected speech modifications is a factor affecting the performance of spoken word recognition.

Research Question 4: Are there interactions between types of connected speech patterns and subjects' proficiency levels?

Table 6 shows the descriptive statistics of the performance of subjects' of different proficiency levels in differentiating the six types of reduced forms. The high-proficiency level students received less satisfactory scores in contraction and /h/-deletion, 57% and 69% respectively. As for the other reduced forms, C-V linking, palatalization, elision, and flapping, 70%, 77%, 77%, and 85% of correct answering rates were found. For the mid-proficiency level students, similar results were yielded in all of the 6 types of reduced forms. Contraction and /h/-deletion belonged to the low-score category, 40% and 46% respectively. Additionally, the scores for C-V linking, palatalization, elision, and flapping were 51%, 68%, 69%, and 71% respectively. As for the low-proficiency level students,

the rate of difficulty, i.e., the correct-answering rate, remained similar to those of the other groups. There was a clear distinction between the scores for /h/-deletion and contraction, 20% and 27% respectively, and those for C-V linking, elision, palatalization, and flapping, 43%, 44%, 55%, and 70% respectively.

Table 6. Descriptive statistics for the performance of subjects of different proficiency levels in six types of reduced forms

Proficiency	Type	<i>N</i>	<i>M</i>	<i>SD</i>
high	contraction	26	0.57	0.232
	palatalization	26	0.77	0.101
	C-V	26	0.70	0.168
	elision	26	0.77	0.254
	/h/-deletion	26	0.69	0.426
	flapping	26	0.85	0.159
mid	contraction	50	0.40	0.177
	palatalization	50	0.68	0.127
	C-V	50	0.51	0.174
	elision	50	0.69	0.299
	/h/-deletion	50	0.46	0.402
	flapping	50	0.71	0.170
low	contraction	27	0.27	0.177
	palatalization	27	0.55	0.167
	C-V	27	0.43	0.174
	elision	27	0.44	0.307
	/h/-deletion	27	0.20	0.286
	flapping	27	0.70	0.185

As shown in Table 4, the two-way ANOVA analysis revealed a significant interaction between the proficiency levels of the students and their respective performances in the 6 types of connected speech modifications, indicating that the performances of word recognition differed among the 3 proficiency levels across the six types of connected speech modifications. The high-proficiency level students performed significantly better than the mid- and low-proficiency level students.

To further investigate the interaction, post hoc analyses were employed to determine how proficiency levels have interacted with types of connected speech patterns. Table 7 provides the results of post hoc analyses of subjects' proficiency levels and types of reduced forms. The analyses yielded a result that in contraction, palatalization and elision, the high-proficiency group performed significantly better than the mid-proficiency group, and the mid-proficiency group performed significantly better than the low-proficiency group. In C-V linking and flapping, the high-proficiency group performed significantly better than both the mid- and low-proficiency groups, but the latter two groups did not differ significantly. In contrast, in /h/-deletion, both the high- and mid-proficiency groups performed significantly better than the low-proficiency group, but the former two groups did not significantly differ.

Table 7. Post hoc analyses of the interaction between subjects' proficiency levels and types of reduced forms

Type	proficiency	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
contraction	high	26	.57	.232	16.122	.000*
	mid	50	.40	.177		
	low	27	.27	.177		
CV	high	26	.77	.101	18.153	.000*
	mid	50	.68	.127		
	low	27	.55	.167		
palatalization	high	26	.70	.168	17.192	.000*
	mid	50	.51	.174		
	low	27	.43	.174		
/h/-deletion	high	26	.69	.254	11.692	.000*
	mid	50	.69	.239		
	low	27	.44	.307		
elision	high	26	.77	.426	10.862	.000*
	mid	50	.46	.402		
	low	27	.20	.286		
flapping	high	26	.85	.159	6.352	.003*
	mid	50	.71	.170		
	low	27	.70	.184		

The indication garnered from the results was that there were interactions between the proficiency level of the students and the types of connected speech patterns. In other words, the higher students' proficiency level was, the better they could detect the connected speech patterns used in the natural speech flow, the ability of which further affected students' performance of spoken word recognition.

Conclusions

English majors are believed to be more highly motivated in learning English. They are required to deal with English related courses in literature, linguistics, and the four language skills. When they are expected to know more than other EFL learners, some basics about language learning are neglected, for example, good pronunciation (accuracy), speech flow (fluency), and intonation (prosody). Literature and linguistics are regarded as academic courses where students learn a lot of terms without applying them to their language use. Connected speech is the result of simplified phonology lexical presentation. Though English majors are exposed to larger quantity of L2 input, their lack of knowledge and application of reduced forms might hinder them from making progress in listening comprehension. Therefore, it is highly recommended that reduced forms be taught in relevant courses of language skills.

The mean score 43.19, out of a maximal score of 45 for the Intermediate GEPT for the high-proficiency group, represents reaching the ceiling for this test level, meaning that they are ready for the challenge of attaining the high-intermediate GEPT level. But the present study has found that there is still a long way to go before they attain native speakers' level of recognizing the presence of connected speech patterns. This finding strongly suggests the necessity of instruction intervention to strengthen higher-proficiency students' competence in listening.

As for the lower-proficiency students, instruction is even more urgent. The lack of knowledge of connected speech patterns apparently has hindered them from gaining

successful listening competence. A follow-up study on the effect of instruction targeting connected speech modifications is thus strongly suggested.

The lack of knowledge and practice of reduced forms can lead to less than satisfactory performance of English listening and speaking, even for English majors with the intermediate GEPT level proficiency. Since the subjects for the present study are English majors, who have started to study literature and linguistics in their sophomore year, it would be highly advantageous for instructors of language courses to properly integrate the students' specialized fields of knowledge into the field of English language learning. For this study, the knowledge of phonetics and phonology the students have acquired in linguistics should help them a lot in understanding and applying the knowledge of reduced forms in the dictation test. What is required of the students is not sufficient exposure to input only; it is more about the ability of analyzing, integration, and deduction. For students whose major is English, fluency is an ideal goal to attain. Only when the knowledge of reduced forms is applied to constant practice will the value of the knowledge be revealed and treasured. Only when an English major tactfully applies his/her valuable professional knowledge to the production of good English will he/she possess the signature of an English major.

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Appendix

Dictation Test

Instructions:

In a moment you will hear 24 sentences. Some are statements, some are questions, and some are exclamation. All of them are grammatically correct. After you hear each sentence, write it down in the appropriate space on your paper. Use the full form of each word even though some of the words you hear may be contracted or blended together. For example, if you hear the sentence "What'd ja do yesterday?" you should write down What – did – you – do – yesterday? Even though the first few words were contracted and reduced to "What'dja".

You should rely on your knowledge of English sentence structure as well as on the sounds you hear. Think and write quickly. The pauses between sentences will not be too long. If you do not have time to write the full sentence or you cannot remember all of it, write as much as you can - even if it is only the first few words. Each sentence will be spoken only once and none of the sentences will be repeated.

If you have any questions about what you are supposed to do, raise your hand and ask them.

Are you ready to begin? OK. Let's go!

Example: (What) (did) (you) (do) (yesterday)?

1. (He) (has) (not) (left) (the) (office) (yet) (this) (morning).
2. (I) (miss) (you) (a) (lot) (since) (you) (left) (for) (school).
3. (Please) (remember) (to) (pick) (us) (up) (right) (here).

4. (Susan) (is) (late). (I) (wonder) (what) (is) (keeping) (her).
5. (If) (you) (praise) (yourself), (you) (will) (sound) (too) (proud)!
6. (I) (bought) (the) (shirt) (for) (you). (You) (should) (put) (it) (on).
7. (I) (hope) (we) (will) (get) (together) (again) (soon).
8. (Last) (Saturday) (I) (forgot) (to) (write) (you).
9. (Be) (happy). (It) (will) (all) (work) (out) (somehow).
10. (Can) (you) (tell) (me) (the) (exact) (time) (it) (opens)?
11. (If) (you) (were) (not) (here), (it) (could) (have) (been) (worse)!
12. (It) (will) (turn) (out) (better) (than) (you) (think).
13. (Lisa) (is) (busy). (She) (will) (not) (help) (me) (today).
14. (Step) (away) (from) (the) (wet) (spot), (or) (you) (might) (fall).
15. (Be) (sure) (to) (call) (her) (before) (Saturday).
16. (It) (is) (dangerous) (to) (swim) (in) (this) (deep) (pool).
17. (If) (you) (eat) (it) (fast), (you) (will) (gain) (much) (weight).
18. (Your) (train) (is) (coming). (I) (must) (not) (keep) (you).
19. (Emily), (would) (you) (do) (me) (a) (favor)?
20. (I) (think) (it) (is) (fair) (enough) (for) (everyone).
21. (Has) (he) (been) (to) (your) (new) (house) (already)?
22. (We) (saw) (a) (big) (game) (before) (we) (had) (lunch).
23. (I) (wrote) (a) (paper). (Did) (you) (read) (it) (yet)?
24. (I) (called) (you) (yesterday) (at) (least) (three) (times).